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ABSTRACT

In the first of two studies, fifth and eighth graders and undergraduates were shown the patterns of three hypothetical group members' preferences regarding three alternatives. The hypothetical groups members' preferences were ranked first, second, third (Group O); or desirable, neutral, undesirable (Group PN). The subjects' task was to use the three group members' preference order to decide a preference order for the group. Four strategies of decision making emerged: (1) concession-oriented; (2) minority-oriented majority rule; (3) majority rule; and (4) limited majority rule. Results indicated that undergraduates and eighth graders used all four strategies, while fifth graders concentrated on limited majority rule. Undergraduates and eighth graders used the concession-oriented strategy more often with the PN than the O group. In the second study, the four strategies were explained to fifth graders and undergraduates before these students made their decisions. A new hypothetical group, Group PP, whose rankings were very desirable, fairly desirable, and neutral, was added. Undergraduates used the concession-oriented strategy more often with the PN group than with the O or PP groups, and more often with more important than with less important issues. Fifth graders showed no difference in strategy use for less or more important issues. (BC)

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# DETERMINANTS OF STRATEGY CHOICES IN DECIDING AN ORDER OF PREFERENCE FOR A GROUP

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Two studies were carried out. Study 1 examined what strategy young persons use to decide an order of preference for a group when the group consists of persons having different conflicting orders of preferences. Study 2 examined what factors influence young persons' choice of strategy.

## Study 1

### Method

Subject: Subjects from three grades were assigned one of two conditions: PN or O. The numbers of subjects in each group are as follows:

| | PN | O | Total |
|---|---|---|---|
| 5th grade | 33 | 39 | 72 |
| 8th grade | 46 | 44 | 90 |
| Undergraduates | 44 | 41 | 85 |

Procedure: Subjects were shown patterns of three persons' preferences for three alternatives. The three persons were members of a hypothetical group. An example is shown below.

Individual preference order

| | First | Second | Third |
|---|---|---|---|
| Member 1 | A | B | C |
| Member 2 | B | C | A |
| Member 3 | B | A | C |

The subject's task was to use the three persons' preference

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order to decide preference order for the group. Subjects were also asked to describe how they reached their decisions. Ten types of preference-order were possible. The preference patterns presented to subjects were of the following five types:

| | type 1 | type 2 | type 3 | type 4 | type 5 |
|---|---|---|---|---|---|
| Member1 | A B C | A B C | A B C | A B C | A B C |
| Member2 | B C A | B C A | A B C | A B C | A B C |
| Member3 | C B A | A C B | B C A | C A B | C B A |

Subjects were assigned one of two conditions: PN or O. These conditions changed the expressions indicating the degree of preference by each member of the group (for each of the 3 choices). The expressions used were

PN: most desirable, neutral, most undesirable.

O: first, second, third ( as in the above example).

Subjects were given a booklet in which two practice items and five types of pattern were printed in random order. Tasks were given in a group test. The appendix contains examples of the tasks.

Results

From analyzing subject's n descriptions of how they made their decisions, four underlying strategies emerged. These four strategies, plus the category " other" are listed below. Agreement of the two judges assigning responses to the 5 categories was 93%.

(1) Concession-Oriented strategy

The subject attempted to compromise, and looked for concessions from all 3 members. For example, some subjects used (1) to choose

BAC as the group's order in Type 5 above. Typical explanations were:

"Though A was chosen as most desirable by two members, one chose A as the least desirable. So B should be first, because nobody dislikes it."

"If every member makes compromises a little, they can agree."

(2) Minority-Oriented Majority Rule strategy

Subjects used majority rule to decide the first alternative, then used the minority's choice for the second alternative . for example, subjects used (2) to choose ACB in Type 5. A typical explanation was: " Two members chose A as best, so A should be the first choice for the group. The other member chose C as best, so C should be the second choice for the group."

In type 1, as two members chose A as the worst choice, A should be the third choice of the group. The other member chose C as the worst, C should be the second choice of the group.

(3) Majority Rule strategy

The subject compared all possible pairs (A&B, B&C, C&A) and weighted each choice. For example, subjects used (3) to choose BAC in Type 1. Explanation included:

" If you compare A & B, B is preferred to A. As for A and C, C is preferred to A. And B is preferred to C. So the group's order should be BCA." " I gave 3 points to the most important choice, 2 points to the second, and 1 to the worst. Then I added the points up and ordered the groups choice according to the store."

(4) Limited Majority Rule strategy

Subjects applied majority rule to the degree to which one

alternative was preferred to another. For example, in Type 1, subjects used (4) to choose B as the second choice, A as the third choice, with the remaining choice being C. A subject who used (4) to decide Type 5 explained: " The group's preference order beecomes ABC because two persons chose ABC."

In both the above cases, subjects applied majority rule to a subset of the patterns, and didn't compare all of the choices.

(5) Other

This catch-all category included responses where judges could not identify the category ( such as for explanations like the following:

" I decided fairly." " Adopted majority rule." ) responses which did not include any strategy, and no responses.

Table 1 shows the percentages of the responses classified by category. Interesting points in Study 1 were:

1. Undergraduates' and 8th graders' strategies were distributed among the four strategies, however 5th graders' strategies concentrated on (4) Limited Majority rule.

2. Undergraduates and 8th graders used (1) the Concession-Oriented strategy more often with PN than O.

3. Many 5th graders' responses were classified into (5)Other. Among these responses 14% of O gr. and 5% of PN gr. included no explanation; among the remaining responses, 71 % of O gr. and 52 % of PN gr. were explained by " Used majority decision". The majority of the latter cases resulted in the same decisions as those for (4) Limited Majority Rule; however, these decisions were classified as (5) Other.

## Study 2

Study 2 was carried out to find out what determines the choice of strategy. In study 2, subjects were shown and explained four strategies before they made their decisions. This procedure was adopted to decrease the effect of the subject's verbal ability in descriptions of the strategy they used ( especially for 5th graders). In addition Study 2 used concrete decision situations in stead of unspecified situations.

Study 2 used three types of expressions:

PN : most desirable, neutral, most undesirable.

O : first, second, third.

PP : very desirable, fairly desirable, neutral.

PN and O were the same as in Study 1 but PP indicated a non-negative attitude to all choices.

The following results were expected:

1. Strategy used to decide the group's preference order would change according to the degree of preference of the members of the group. Thus, if the degree of preference were all expressed in positive term, subjects would normally apply majority rule. If some members dislike some alternatives(PN), subjects would would probably try to make concessions rather than use majority rule. Thus we expected subjects to use the Concession- Oriented strategy more often with PN than with PP, and to use majority rule( including limited-majority rule ) would be often with PP than with PN. We expected subjects ' use of strategies with O to be between PP and PN.

2. We expected subjects to change strategies according to the importance of the issue. When the issue was important, subjects

would choose the Concession-Oriented strategy more often than when the issue was not important.

3. The degree of importance would change subjects' strategy more greatly in PN than in PP or O.

< Method >

Subjects: Numbers of subjects in each group are as below.

| | PP | O | PN | Total |
|---|---|---|---|---|
| undergraduates | 51 | 33 | 53 | 137 |
| 5th grade | 32 | | 39 | 71 |

Procedure: Subjects were shown six concrete decision situations: e.g. deciding a preference order for topics a group will study. The issues to be decided were important for the group members in three of the situations, and not important in the other three. These six situations were chosen from ten decision situations for which 20 undergraduates, who did not participate in the study, rated the degree of importance with a 6-points scale.

Types 1, 3, and 5 used from Study 1. were used. Each type involved both important and not important issues. The expression for PN, O , and PP were as described above.

Subjects were shown the four strategies ( (1)-(4) in Study 1) and each strategy was explained. Then subjects were shown each situation and asked to decide the preference order for the group. After deciding the group's preference order, the subjects were asked to choose one strategy from four (1)-(4), by which they reached their decision. They were also told that if they used a different strategy from (1)-(4), they should describe it in

detail.

After completing the six situations, subjects were asked to use the 6-points scale( 6= most important, 1=least important) to rate the degree of importance of each of the six situations.

< Results >

Table 2 shows the percentages of each strategy used by subjects.

1) The degree of preference: As expected, undergraduates used the Concession Oriented strategy more often with PN than with O, or with PP ( for H+L PN:O $\chi^2$= 11.78, PN:PP $\chi^2$= 23.63, p< .01, df=1). Majority Rule and Limited Majority Rule were used more often in PP and O than PN ( PP:PN $\chi^2$=9.89, O :PN $\chi^2$=8.79, p<.01, df=1).

2) The degree of importance of the issue: Table 3 shows the mean score of importance of three situations assumed to be of high importance, and the three situations assumed to be of low importance. Those situations assumed to be more important by the experimenter, were also rated to be more important by the subjects. Thus, the importance of the issue was a significant variable in this experiment.

Table 2 shows that undergraduates used the the Concession-Oriented strategy was used more often when the issues to be decided were more important than when less important. The change in strategy use was larger with PN and O than PP(in PN $\chi^2$= 5.51, O $\chi^2$=4.74, p<.05, df=1).

3) Fifth graders' strategy use: As shown in Table 2, 5th graders used Limited Majority Rule most often with PP and with PN. Moreover, there was no difference between the strategies used for

non-important issues. The 5th graders in Study 2, however, used Concession- Oriented strategy more often than 5th graders in Study 1.

< Discussion >

The two studies showed that undergraduates changed their strategies according to

1) the degree of preference of each member of the group

2) the importance of the issue.

However, 5th graders do not change their strategies even when they understood the differences in importance among the issues to be decided.

The two studies show that adults have many kinds of strategies for making decisions in groups, and that what strategy is regarded as appropriate depends on variables in the situation. Although majority rule is thought to be a fair method to make decisions in a group, it is not always the best method. When the issue to be decided is important for every member of the group and when collaboration from all members of the group is needed, people tend to make concessions to each other and look for consensus. Moreover, when a group member rejects an alternative which other group members favor, majority rule tends to be suppressed.

The influence of variables in changing strategies was not found in 5th graders. However, when the various strategies were shown and explained before 5th graders made a decision, the 5th graders used Concession-Oriented strategy more often than when they had to device the strategy by themselves. It is possible,

however, that in simpler situations 5th graders might change strategies depending on variables in the situation. This possibility needs to be checked further.

Appendix :

( Examples of decision situations. )

(1) Practice ( Study 1 and 2 )

Girl X, girl Y, and girl Z are members of a group in a class. In their class, each group is in charge of a certain job. There are three jobs :

cleaning the class-room, delivering lunch, promoting hygiene.

The three girls prefer the jobs in the following order:

| | First | Second | Third |
|---|---|---|---|
| Girl X | Lunch | Hygiene | Cleaning |
| Girl Y | Lunch | Hygiene | Cleaning |
| Girl Z | Hygiene | Lunch | Cleaning |

The three girls have to decide the preference order of the group.

1) What order of preference do you think is best for the group?

First ( ), Second ( ), Third ( )

2) How did you decide this order of preference ? Describe as much in detail as far as possible.

(2) Practice ( Study 1 )

In the following situation, issues to be decided are not specified. The alternatives are named A, B, and C; the names of jobs are not used. The preference orders of three members of a group are as follows:

| | First | Second | Third |
|---|---|---|---|
| Girl X | C | B | A |

| | | | |
|---|---|---|---|
| Girl Y | B | C | A |
| Girl Z | A | B | C |

Based on the preference patterns for each person, decide preference order for the group. After you decide, describe how you made your decision.

(3) Concrete situation task ( study 2: PN , low importance )

Girl X, girl Y and girl Z are members of a group in a class. They are in charge of taking dare of a rabbit which is being raised by the class. The rabbit does not have any name yet and X,Y, and Z have to propose a name to the class. The girls have thought of three names; A, B, and C. The orders of preference for the three names are as follows:

| | Like most ( most desirable) | Neutral | Dislike most. ( most undesirable) |
|---|---|---|---|
| Girl X | A | B | C |
| Girl Y | B | C | A |
| Girl Z | A | B | C |

TABLE 3 Mean scores of the degree of importance in each type of issues

| Undergraduates | | | | | | |
|---|---|---|---|---|---|---|
| group | PP | | O | | PN | |
| importance | L | H | L | H | L | H |
| mean | 2.93 | 5.01 | 2.35 | 4.63 | 2.69 | 5.11 |
| SD | 0.91 | 0.78 | 0.51 | 0.76 | 0.75 | 0.65 |
| difference | p<.001 | | p<.001 | | p<.001 | |

| 5th graders | | | | |
|---|---|---|---|---|
| | PP | | PN | |
| | L | H | L | H |
| mean | 2.73 | 4.68 | 2.79 | 4.71 |
| SD | 0.76 | 0.81 | 0.91 | 0.89 |
| | p<.001 | | p<.001 | |

TABLE 1 Percentages of each strategy used in each group

| grade | 5 | | 8 | | U | |
|---|---|---|---|---|---|---|
| condition / strategy | O | PN | O | PN | O | PN |
| concession-oriented | 2 | 9 | 18 | 33 | 18 | 37 |
| minority-oriented | 0 | 1 | 8 | 4 | 11 | 18 |
| majority rule | 0 | 1 | 12 | 12 | 27 | 23 |
| limited majority | 59 | 63 | 51 | 43 | 39 | 16 |
| other | 39 | 25 | 11 | 8 | 5 | 8 |

TABLE 2 Percentages of each strategy used in each group

Undergraduates

| condition | PP | | | O | | | PN | | |
|---|---|---|---|---|---|---|---|---|---|
| importance / strategy | L | H | L+H | L | H | L+H | L | H | L+H |
| concession-oriented | 42 | 49 | 45 | 40 | 59 | 49 | 58 | 71 | 65 |
| minority-oriented | 14 | 12 | 13 | 11 | 9 | 10 | 9 | 5 | 7 |
| majority rule | 21 | 20 | 20 | 20 | 14 | 17 | 14 | 12 | 13 |
| limited majority | 22 | 16 | 19 | 27 | 18 | 23 | 17 | 11 | 14 |
| other | 1 | 3 | 2 | 1 | 0 | 1 | 1 | 1 | 1 |

Fifth graders

| condition | PP | | | PN | | |
|---|---|---|---|---|---|---|
| importance / strategy | L | H | L+H | L | H | L+H |
| concession-oriented | 27 | 25 | 26 | 28 | 30 | 29 |
| minority-oriented | 6 | 6 | 6 | 2 | 3 | 2 |
| majority rule | 16 | 19 | 17 | 17 | 20 | 18 |
| limited majority | 42 | 40 | 41 | 49 | 44 | 46 |
| other | 9 | 10 | 10 | 4 | 4 | 4 |